

29 September 2014

**EPA's General Comments on the Revised Post-Mine Reclamation Plan Overview (dated August 2014) Conceptual Compensatory Mitigation Plan (CCMP) and Fish Protection Plan (both dated June 2014) for the proposed Chuitna Coal Project.**

We regard the Fish Protection Plan as a component of the Compensatory Mitigation Plan that identifies several specific proposals to offset the loss of fish production capacity that would result from the direct impacts to anadromous streams within the mine's excavation footprint.

Key points regarding the requirement for compensatory mitigation for the project's direct impacts: First, compensation is required for all direct impacts to jurisdictional waters of the U.S. to the extent that it is appropriate and practicable. "Appropriate" in this context means commensurate with the level of impact. The impacts from some projects, such as those authorized by general permits, are so minimal that no compensation is warranted. We do not believe that to be the case here. "Practicable" means "available and capable of being done." The CCMP provides no information indicating that compensation might be impracticable.

As stated above, direct impacts resulting from the discharge of fill must be compensated for. Secondary and cumulative impacts generally do not require compensation under 404. Secondary impacts, such as those from the discharge of aquifer drawdown water, result from associated project activities not regulated by 404, though compensation may be required by other agencies under different authority. Cumulative impacts result from the independent actions of other permittees. Cumulative impacts are not compensated for per se, but they have the effect of increasing the severity of the direct (and possibly secondary) impacts. The result is that the direct impacts would be compensated for at a higher rate due to the increased severity.

We have concerns about the efficacy of off-site compensation to reduce the level of impact below that which would cause or contribute to significant degradation. 43 CFR 230.10(c) provides that *"no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States."* Proposed discharges that cause or contribute to significant degradation as determined by the factual determinations contained in the 404(b)(1) Guidelines in spite of compensatory mitigation may not be authorized.

Although compensation may not be required for secondary and cumulative impacts, these impacts are explicitly evaluated during the significant degradation determination. The significance of the project impacts, direct, secondary, and cumulative, and whether these impacts might cause or contribute to significant degradation is never addressed in the CCMP.

This is understandable, as the CCMP is not a (b)(1) evaluation, but the restrictions on discharge contained within the CWA Section 404(b)(1) Guidelines [at 230.10] must be addressed at some point. The restrictions are independent and intended to be addressed sequentially. That is, the LEDPA for the overall project purpose is to be identified before the questions of whether the proposed discharge would cause or contribute to the violation of an applicable water quality standard or toxic effluent

standard are addressed. Similarly, the question of whether the proposed discharge would cause or contribute to significant degradation should be addressed prior to completion of a detailed compensatory mitigation plan.

230.10(c) prohibits the authorization of discharges that cause or contribute to significant degradation. 230.10(d) requires all practicable avoidance, minimization, and compensation of project impacts. These are independent restrictions and 230.10(c) is not “met” by skipping it and complying with 230.10(d). Due to the sequential nature of the Guidelines, a determination that the project would cause or contribute to significant degradation generally precludes discussion of compensatory mitigation. Compensatory mitigation is relevant for compliance with 230.10(c) only if specific compensation measures served to reduce the significance of project impacts.

Typical third-party compensation measures (i.e., purchasing mitigation credits from mitigation banks or In-lieu fee (ILF) program sponsors) “offset” impacts through functional transfer (i.e., from the impact to the mitigation site). For the majority of projects that do not result in significant degradation, functional transfer is appropriate and explicitly acknowledged in the Guidelines.

The situation changes if functional loss at the project site results in significant degradation. Since functional gain at the mitigation site does not reduce the severity of the impacts at the project site, the purchase of mitigation credits does not help a project to comply with 230.10(c).

Unlike the projects of mitigation banks and ILF program sponsors, permittee-responsible mitigation (PRM) projects are designed to offset specific impacts, and are therefore more likely to reduce the severity of project site impacts. The PRM proposed within the Fish Protection Plan appears intended to offset functional losses within the project footprint through functional gains within the watershed, with potential implications for compliance with 230.10(c). The EPA supports this conceptual approach.

The Fish Protection Plan focuses on that portion of the stream network documented as anadromous fish habitat. As mentioned above, however, all of the direct impacts to jurisdictional waters, both streams and wetlands, would need to be compensated for.

Both temporal and permanent losses of aquatic resource function may need to be compensated for. Temporal losses are those associated with the mine disturbance that are not permanent because successful post-mine restoration re-establishes the aquatic function. Permanent losses are those where post-mine restoration does not fully re-establish the aquatic function.

Direct compensation may not be required for projects with short-duration temporal losses. In such cases, permanent losses may be compensated for at a higher ratio to address the temporal loss. In this case, however, the temporal losses appear to be of sufficient duration as to be treated as permanent. The applicant’s groundwater modeling indicates that it may take fifty years or more for the aquifer to rehydrate after groundwater pumping ceases.

Though the mining activity and disturbance will proceed in phases as the mine cuts are advanced across the mine lease area, it appears as though even the shortest duration temporal losses will be of sufficient duration to warrant direct compensation.

If all of the aquatic resources in the mine footprint will suffer long-term temporal loss, compensating for the temporal loss would also offset any permanent losses. To some extent, this simplifies the issue of compensatory mitigation, as functional losses are addressed only once. There is no need to separately quantify the temporal and the post-restoration permanent losses.

We intentionally refer here to restoration rather than reclamation. Reclamation is intended to stabilize the mine site and support the post-mining land use. Reclamation activities may or may not include the restoration or establishment of specific aquatic resource functions. Restoration of aquatic resources is planned as a major component of post-mine reclamation, but it is the specific restoration actions that will result in aquatic function gains if they are successful.

We consider the distinction between reclamation and restoration to be significant. Actions that are taken as compensation are also distinct. Restoration by definition is a form of compensatory mitigation that results in gains of aquatic resource function, though not acreage. Reclamation could also include the establishment of aquatic resources, which would result in both acreage and functional gains. Reclamation itself is not directly related to compensation.

Section 1.5 of the CCMP relates mine reclamation with compensation. It states: *“Concurrent reclamation is a required regulatory component of the coal mining process. Therefore, it is logical to measure the mine impacts on wetlands and streams as the mining advances and consider the reclamation that occurs as part of the mitigation for future mine advances.”* We disagree with the final statement. Reclamation, whether required or not, does not necessarily result in gains of aquatic resource function.

And reclamation that includes restoration is typically considered as a minimization measure. The effective restoration of aquatic resources would result in a reduced level of, or perhaps even eliminate, permanent impacts. In order for aquatic resource restoration or establishment conducted during post-mine reclamation to be used as compensation, they would have to result in aquatic resource functional gains relative to the pre-mine condition.

As indicated in the CCMP, credits and debits are units of measure that represent the accrual or loss of aquatic resource function. To characterize them, as the CCMP also does, as representing gains and losses of habitat value, is a misleading oversimplification. The issue of credit generation is an important one. Per the Final Rule, the accrual of aquatic resource function (the “functional lift”) represented by a credit is determined by a function or condition assessment that compares the post-project condition with the pre-project (baseline) condition. Compensation activities that result in no measureable functional lift generate no credits, those that generate minimal functional lift, such as many enhancement activities, would generate minimal credits.

The CCMP indicates in Table 4.1.1 that *“concurrent reclamation from ongoing mining activity”* will accrue credits to be used as compensation to offset the mining disturbance. This is not possible. If the

post-mine reclamation is successful in fully restoring the aquatic resources to their pre-mine condition, there is still no functional lift relative to the baseline condition and therefore no mitigation credits are generated to use for compensation.

The establishment of additional aquatic resources relative to the existing condition would generate mitigation credits. The likelihood of successfully establishing an ecologically self-sustaining landscape with more streams and wetlands than currently exist appears slim, though climate models do predict increased precipitation in the future.

An additional problem with relying on the establishment of aquatic resources during site reclamation is that mitigation credits generally must be generated *“prior to or concurrent with”* authorized impacts. Mitigation credits are released after the achievement of performance measures identified in the mitigation work plan. This means that the success of the establishment must be shown before any credits could be allocated or released. If the phasing of the project were such that adequate time was available to demonstrate the success of establishment, those credits could be used to offset future impacts. Our understanding, however, is that the hydrology will not be re-established until the end of mine excavation.

Several decades of experience with compensatory mitigation and numerous studies have shown that success in generating functional lift is often elusive. The establishment, restoration, and enhancement of aquatic resources are risky endeavors. The Final Mitigation Rule requires the Corps to incorporate the consideration of risk into its compensatory mitigation decisions. This is generally done by applying ratios to required compensation so that the amount of compensation will be adequate to offset the authorized impacts even if the mitigation actions are not 100% successful.

The CCMP contains ratios from the Alaska District Regulatory Guidance Letter (RGL) 09-01. We understand the RGL has been withdrawn. Neither the RGL 09-01 nor the CCMP identifies a sample ratio for aquatic resource establishment, which is the riskiest form of compensation. Applying even a moderate ratio of 3:1 to establishment increases the compensation obligation substantially.

Take the case of the project’s stream impacts: Streams are defined by Corps and EPA regulations as *“difficult to replace.”* The Final Mitigation Rule indicates that such resources should be offset in-kind where possible. “In-kind” in general practice means not only stream-for-stream rather than wetland-for-stream, but also that functional gains and losses be matched by stream order or type where possible. This is because the functions performed by streams of different orders are distinct enough that functional gains to a third-order stream (e.g., coho habitat enhancement) cannot effectively offset functional losses to a first-order stream (e.g., nutrient cycling or flow moderation).

As discussed above, all of the direct stream impacts, not only the impacts to anadromous waters, must be compensated for. The Final Mitigation Rule indicates that preservation, restoration, and enhancement are all preferable to stream creation (establishment) due to the latter’s very high failure rate.

The Fish Protection Plan indicates that approximately 51.6 linear miles of jurisdictional streams will be impacted by the mining activity. The CCMP identifies different categories of stream and suggests different mitigation ratios. Using a preservation ratio of 2:1 simply for the sake of discussion means that over 100 linear miles of stream would need to be preserved to offset the impacts. Using a creation ratio of 3:1 means that over 150 linear miles of stream would need to be created. Again, for the compensation to be truly “in-kind” an analogous stream network, with first, second, and third order streams of similar physical characteristics would have to be preserved, restored, enhanced or established.

If the compensation were to be “out-of-kind” such as wetland enhancement to offset stream loss, then mitigation ratios would need to be higher. Suggested activities such as nutrient addition or the planting of hatchery stock may offset some of the lost fish production capacity, but actually do nothing to offset the loss of the aquatic resource itself. The streams and wetlands on the project site do much more than produce anadromous or even resident fish. If nutrient addition, for example, were considered as enhancement, credit generation would be minimal. If fish production is one of perhaps eight stream functions, then 400 linear miles of stream would need to be enhanced, even without applying a mitigation ratio.

The Fish Protection Plan proposes enhancing fish habitat in streams outside of the mine footprint by adding cover and bank complexity. Similar to nutrient addition, even if the enhancement were successful (and we are frankly skeptical), credit generation would be minimal. From this perspective, *“Enhancing approximately 2 miles of stream channel [to] increase spawning and rearing potential”* would fall about 398 miles shy of being adequate to offset impacts at a 1:1 ratio.

Section 5 of the Fish Protection Plan describes the design approach for stream and pond habitats. The text of this section is confusing, as it references stream channel restoration during mine-site reclamation and stream establishment prior to mining for compensation. The description of the existing conditions and the reference reaches is valid for post-mine reconstruction, but a mine-site reference reach cannot provide design information for a channel to be constructed at some other location.

As the Fish Protection Plan itself states, streams are a product of their environment. This is why most stream creation projects fail. Physically constructing a stream where the landscape does not currently support one does not alter that landscape. Reference data from some other landscape might as well be random. Unless you understand how water will move from the watershed to the constructed channel, you cannot predict the movement of that water through the channel, floodplain, and sediments. If you don’t have the basin hydrology, the sediment or wood supply to maintain a stream channel, construction efforts will be futile.